FM IF amplifier and demodulator

Technology: Bipolar

Features

- Input and demodulator provided for operating with ceramic-resonators
- No selection of volume-input characteristics
- Independent sound output for VTR and headphone
- Additional sound input
- High ripple rejection
- High residual carrier suppression prevents harmonic distortions

Case: 14 pin dual inline plastic

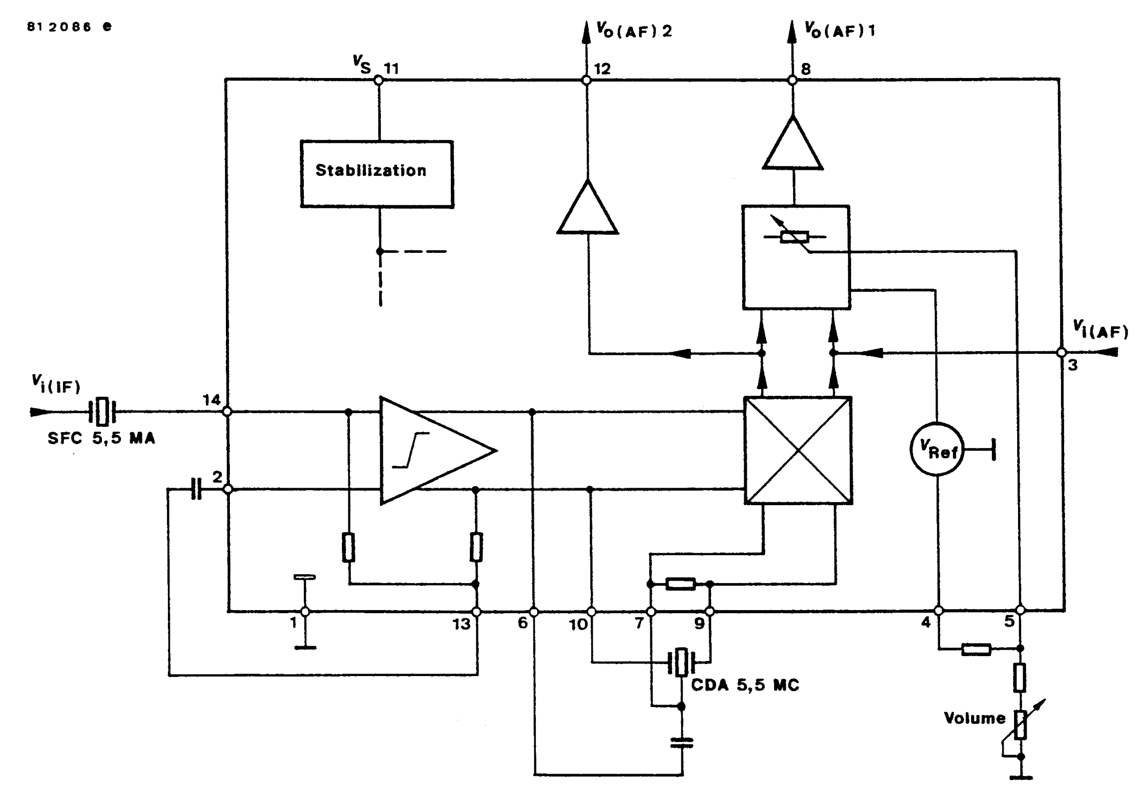


Figure 1 Block diagram

Pin Configuration

Pin	Symbol	Function
1	GND	Ground
2, 13		Feedback
3	$V_{i(AF)}$	AF input – SCART
4	V_{ref}	Reference voltage
5	V_5	Volume control

Pin	Symbol	Function
6,7,9,10		FM demodulator filter
8	$V_{o(AF)1}$	AF output – controlled
11	V_S	Supply voltage
12	$V_{o(AF)2}$	AF output – uncontrolled
14	$V_{i(IF)}$	IF input

Absolute Maximum Ratings

Reference point pin 1, unless otherwise specified

Parameters		Symbol	Value	Unit
Supply voltage	Pin 11	V_S	18	V
Volume setting voltage	Pin 5	V_5	6	V
Reference supply current	Pin 4	I_{Ref}	5	mA
Power dissipation	T_{amb} = 60°C	P_{tot}	400	mW
Ambient temperature range		T_{amb}	–15 to +70	°C
Storage temperature range		T_{stg}	–25 to +125	°C

Electrical Characteristics

T_{amb} = +25°C, V_S = 12 V, f = 5.5 MHz, Figure 3, reference point pin 1, unless otherwise specified

Parameters	Test Conditions / Pins	Symbol	Min.	Typ.	Max.	Unit
Supply voltage range	Pin 11	V_S	10		18	V
Supply current	Pin 11	I_S	9.5		17.5	mA
Reference voltage	Pin 4	V_{oRef}	4.2	4.8	5.5	V
Output resistance	Pin 4	r_{Ref}		12		Ω
Frequency range		f		0 to 12		MHz
IF voltage gain	Pin 6/14	G_{IF}		68		dB
Limited IF output voltage	Pin 6 – 10	$V_{o(IF)pp}$		250		mV
Input limiting voltage	Δf = ± 50 kHz, f_{mod} = 1 kHz Pin 14	$V_{i(IF)}$		30	60	μV
Input impedance	Pin 14	R_i C_i		800 5		Ω pF
AM rejection	m = 30 %, Δf = ± 50 kHz, V_i = 500 μV, f_{mod} = 1 kHz	k_{AM}	50	60		dB
DC voltage at AF output	V_i = 0 Pin 8 Pin 12	$V_{o(AF)1}$ $V_{o(AF)2}$		4 5.6		V V
Ripple rejection	Pin 11/8 Pin 11/12	k_{Br} k_{Br}		35 30		dB
IF residual voltage	without de-emphasis capacitor Pin 8 Pin 12	$V_{o(IF)1}$ $V_{o(IF)2}$		20 30		mV
AF output voltage	V_i = 10 mV, Δf = ± 50 kHz, f_{mod} = 1 kHz, R_5 = 20 kΩ Pin 8 Pin 12	$V_{o(AF)1}$ $V_{o(AF)2}$	650 400	900 650		mV mV
Output resistance	Pin 8, 12	r_o		1.1		kΩ
AF voltage amplification	R_5 = 20 kΩ, Pin 8/3	G_{v1}		7.5		dB
AF damping	R_5 = 13 kΩ, Fig. 3 Pin 8	$–G_{v1}$	24	30	34	dB
Volume setting range	Pin 8	$\Delta V_{o(AF)1}$	70	85		dB
Input resistance	Pin 3	r_i		2		kΩ
Mute function						
Switching current	Pin 2 or 13	I_{sw}			400	μA
Switching voltage	Figure 2	V_{mute}	3			V

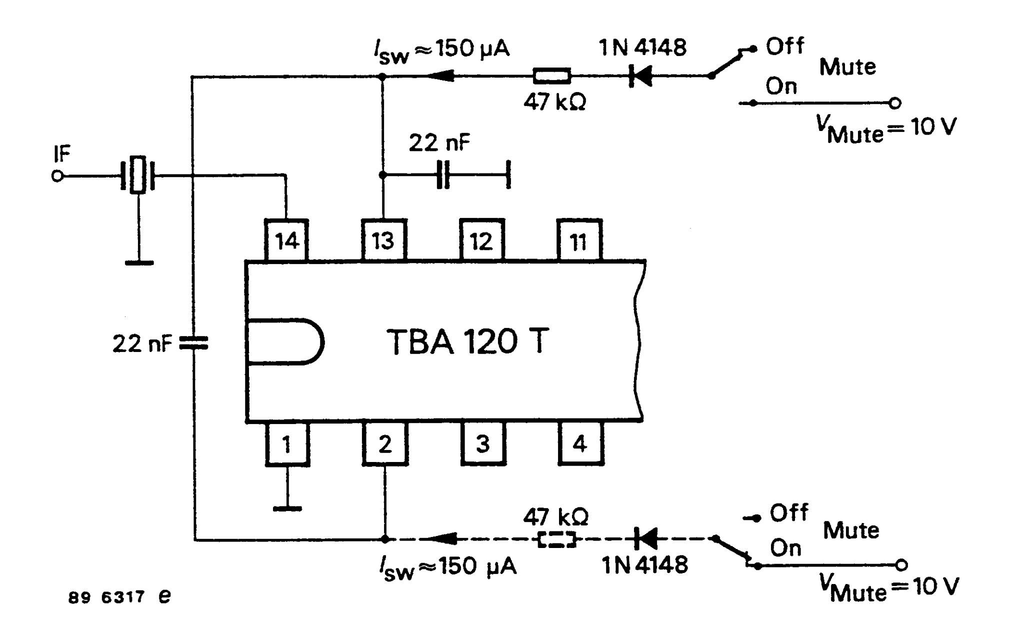
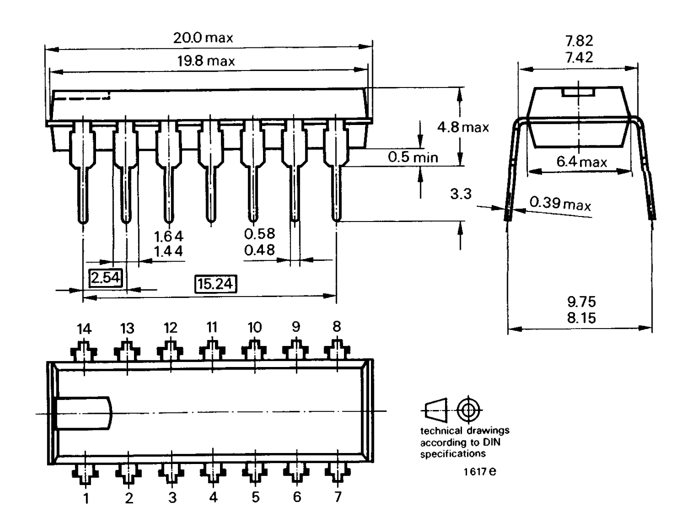


Figure 2

Figure 3 Test circuit

Dimensions in mm

Package: JEDEC MO 001, DIP 14-leads



We reserve the right to make changes to improve technical design without further notice.
Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use TEMIC products for any unintended or unauthorized application, the buyer shall indemnify TEMIC against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

TEMIC TELEFUNKEN microelectronic GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany
Telephone: 49 (0)7131 67 2831, Fax Number: 49 (0)7131 67 2423